## REMARKS

Claims 1-5, 7-10, 12-16 and 28 are pending. Claims 1-5, 7-10, 12-16 and 28 stand rejected. Applicants note that previously allowed claims 8 and 10 are now rejected over prior art previously of record.

## REJECTIONS UNDER 35 U.S.C. §102

Claims 1-5, 7-9, 12, 14-16 and 28 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 4,619,854 to Haefling et al. Applicants respectfully traverse this rejection for the reasons set forth below.

Applicants' invention, as recited in claim 1, includes a feature which is neither disclosed nor suggested by Haefling et al., namely:

> ...a polymer coating disposed over at least a portion of a surface of the orifice. (Emphasis Added)

This feature is disclosed in applicants' specification, for example, page 4 lines 14-15.

According to claim 1, the bonding tool has polymer coating disposed over at least a portion of the surface of the orifice of the bonding tool.

The Office Action at page 2, paragraph 2 sets forth "Haefling et al disclose a bonding tool comprising an orifice along a longitudinal body, a polymer, non conductive, coating disposed over at least a portion of a surface of the orifice.... The coating is substantially uniform in thickness. (Emphasis added). Applicants respectfully disagree with this contention as it relates to the coating. Specifically, Haefling et al. discloses "a layer of metal oxide 21 deposited on the tip 23 of the capillary 1." Col. 2, line 68 through col. 3, line 1. (Emphasis added) Clearly, a layer

of metal oxide is different than a polymer layer. Further, in an alternative embodiment, Haefling et al. provides an entire tip 53 formed from a high impact resistant plastic material and bonded to the cylindrical portion 27 of capillary 1, rather than a polymer coating. Thus, Haefling does not disclose or suggest that a polymer coating is formed on a capillary bonding tool.

In contrast, applicants' invention, as recited in claim 1, specifies that the bonding tool has a polymer coating disposed over a surface of the bonding tool.

It is because applicants have included the feature of disposing a polymer coating over a surface of the bonding tool that applicants are able to reduce the build-up of contamination and the subsequent embedding of this contamination in the bonding tool, which further leads to increased wear of the bonding tool. Haefling et al. does not achieve this advantage because Haefling et al. does not dispose a polymer coating over a surface of the bonding tool. As Haefling is not aware of the problem associated with carbonaceous buildup of contaminants, it cannot be said that Haefling solves the problem.

For the reasons set forth above, claim 1 is neither disclosed nor suggested by Haefling et al., thus, claim 1 is not subject to rejection under 35 U.S.C. §102(b) as being anticipated by Haefling et al. Applicants respectfully request that the rejection of claim 1 under 35 U.S.C. §102(b) be withdrawn and the claim allowed.

Although not identical, claims 8 and 28 each recite at least one distinguishing feature similar to those of claim 1 and, thus, are likewise not subject to rejection for at least the reasons set forth above with respect to claim 1. Therefore, applicants respectfully request that the rejection of claims 8 and 28 be withdrawn and the claims allowed.

Claims 2-5, 7, 9, 12 and 14-16 ultimately depend upon claim 1, and, thus, are likewise not subject to rejection for at least the reasons set forth above with respect to claim 1.

Claim 10 is rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 6,171,456 to Hadar et al. Applicants respectfully traverse this rejection for the reasons set forth below.

Applicants' invention, as recited in claim 10, includes a feature which is neither disclosed nor suggested by Haefling et al., namely:

> ... an orifice extending along a longitudinal axis of the body...
>
> ...a coating disposed over at least a portion of a surface of the orifice. (Emphasis Added)

This feature is disclosed in applicants' specification, for example, page 4 lines 14-15.

According to claim 10, the bonding tool has coating disposed over at least a portion of the surface of the orifice of the bonding tool.

The Office Action at page 3, paragraph 3 sets forth "Hadar et al disclose a bonding tool having ... a coating disposed on the surface [of the orifice]." According to Hadar, the "coating" is "an amorphous ceramic thin hard layer 21 ... covering the working face 16 to 19." Col. 3, lines 45-46. (Emphasis added) Furthermore, Hadar requires that "the layer 21 ... is not deposited over ... the through-hole H which could affect or change the operation of the wire feed during a bonding operation." Col. 3, lines 51-54 (emphasis added). Thus, Hadar teaches away from applicants' invention. "A reference may be said to teach away when a person of ordinary skill, upon reading

the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant". [1]

In contrast, applicants' invention, as recited in claim 10, specifies that the bonding tool has a coating disposed over a surface of the bonding tool.

It is because applicants have included the feature of disposing a coating over a surface of the bonding tool orifice that applicants are able to reduce the build-up of contamination and the subsequent embedding of this contamination in the bonding tool, which further leads to increased wear of the bonding tool and reduces the drag force of the bonding wire during bonding operation. Hadar et al. does not achieve this advantage because Hadar et al. does not dispose a coating over a surface of the bonding tool orifice.

For the reasons set forth above, claim 10 is neither disclosed nor suggested by Hadar et al., thus, claim 10 is not subject to rejection under 35 U.S.C. §102(b) as being anticipated by Hadar et al. Applicants respectfully request that the rejection of claim 10 under 35 U.S.C. §102(b) be withdrawn and the claim allowed.

## REJECTIONS UNDER 35 U.S.C. §103

Claim 13 is rejected under 35 U.S.C. §103(a) as being unpatentable over Haefling et al. Applicants respectfully traverse this rejection for the reasons set forth below.

[1] In re Gurley, 31 USPQ2d 1130 (Fed. Cir. 1994) citing In re Sponnoble, 405 F.2d 578, 587, 160 USPQ 237, 244 (CCPA 1969).

The Office Action readily admits that Haefling fails to teach that the polymer coating is polyolefin or a parylene, but fails to cite any additional prior art that makes up for the deficiencies noted above with respect to claim 1 from which claim 13 depends. Therefore, applicants submit that he rejection of claim 13 as being unpatentable over Haefling is improper, must be withdrawn, and the claim allowed.

Applicants have amended claims 7 and 8 to correct a minor typographical error. These amendments do not introduce new matter. Entry and examination of claims 7 and 8 is respectfully requested.

In view of the amendments and remarks set forth above, Applicants respectfully submit that the above-identified application is in condition for allowance which action is respectfully requested.

Respectfully Submitted,

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Enclosures: Version with markings to show changes made
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## VERSION WITH MARKINGS TO SHOW CHANGES MADE

CLAIMS:

7. (Twice Amended) A capillary bonding tool according to claim 1, wherein the coating is at least one of i) a polymer, ii) an Alumina, iii) $Si_3N_4$ iv) silica v) a combination of 12% silica and 88% Alumina, and vi) a Diamond like carbon [coating] (DLC).

8. (Twice Amended) A bonding tool for bonding a wire to a substrate, the bonding tool having a body and a working tip coupled to one end of the body, and comprising:

an orifice extending along a longitudinal axis of the body and the working tip; and

a coating disposed over at least a portion of a surface of the orifice,

wherein the coating is a polymer disposed along an interior surface of the orifice and one of i) an Alumina, ii) $Si_3N_4$, iii) silica, iv) a combination of 12% silica and 88% Alumina, and v) a Diamond like carbon [coating] (DLC) disposed along an exterior portion of the orifice.